## REMARKS

In accordance with the foregoing, claim 12 is amended to correct some typographical errors. No new matter is added. Claims 1 and 3-16 are pending and under consideration.

**CLAIM REJECTIONS UNDER 35 USC § 103**

Claims 1, 3-6, 12, 15, and 16 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over U.S. Patent No. 6,859,268 to Chou et al. (hereinafter "Chou") in view of U.S. Patent No. 6,765,670 to Olsson et al. ("Olsson").

Independent claim 1 patentably distinguishes over the applied prior art at least by reciting:

> determining a change amount in an optical signal to noise ratio of said optical signal according to a change of said measured value of said degree of polarization relative to said stored initial value, wherein said predetermined amount of time is set to measure the change in said degree of polarization due to a change in the optical signal to noise ratio, when a change in said degree of polarization due to a change in a polarization mode dispersion is compensated.

On page 4 paragraph 3 of the outstanding Office Action, the Examiner asserts that Olsson discloses or renders obvious portion A of the above-identified recitations of claim 1, that is, "determining a change amount in an optical signal to noise ratio of said optical signal according to a change of said measured value of said degree of polarization relative to said stored initial value."

On the same page 4, paragraph 1 of the outstanding Office Action, the Examiner appears to allege that Chou discloses or renders obvious portion B of the above-identified recitations of claim 1, that is "wherein said predetermined amount of time is set to measure the change in said degree of polarization due to a change in the optical signal to noise ratio, when a change in said degree of polarization due to a change in a polarization mode dispersion is compensated."

**Olsson does not anticipate or render obvious portion A.**

Olsson, which is a newly applied reference, discloses a spectrometer module including a variable differential group delay (DGD) element, for applying a variable birefringence retardation to an incoming optical signal, and a detector unit for detecting the power of a signal exiting said variable DGD element, having a defined state of polarization (see Olsson's Abstract, and Olsson's claim 1).

As stated in the portion of Olsson cited in the Office Action (e.g. col. 11, lines 1-4 of Olsson), the spectrometer module described in Olsson can **measure** power, state of polarization and degree of polarization. Based on these measurements, a monitoring hub is able to process these measurements to **extract** information about signal power at each WDM (wave-length division multiplexed) channel, optical signal to noise ratio at each channel, degree of polarization of each channel, and the wavelength of each channel (see col. 11, lines 14-21 of Olsson). The monitoring hub is also able to **draw conclusions about** network functionality i.e. determine losses, determine noise figures and decay in OSNR (optical signal to noise ratio), determine polarization mode dispersion (PMD), and determine distortions from PMD determine mechanical motion of network elements (see col. 11, lines 21-28 of Olsson). Additionally, Olsson asserts that the monitoring hub performs the above **as a function of time** and thus be able to give information about trends and degradations that might cause outages of the network (see col. 11, lines 32-34 of Olsson).

In the portion of Olsson cited in the Office Action and summarized above, the "degree of polarization of each channel" is included in the list of extracting information and "decay in OSNR" is included in the list of conclusions. However, Olsson does not anticipate or render obvious that the extracting information and the conclusions are combined, and thus, Olsson does not teach that the decay in OSNR is determined based on the degree of polarization.

The above acknowledged teachings of Olsson do not anticipate or render obvious any correlation between the change in OSNR and the change in a measured degree of polarization. In fact, such a direct dependence is claimed for a "predetermined amount of time" set such as "a change in said degree of polarization due to a change in a polarization mode dispersion is compensated." The mere monitoring in time of measured values does not teach or suggest existence of the correlation which occurs after an interval of time at which a certain condition (i.e. "a change in said degree of polarization due to a change in a polarization mode dispersion is compensated") is met. Therefore, *Olsson fails to render obvious "determining a change amount in an optical signal to noise ratio of said optical signal according to a change of said measured value of said degree of polarization relative to said stored initial value."*

**Chou does not anticipate or render obvious portion B.**

In the first paragraph, on top of page 4 of the outstanding Office Action, the Examiner inappropriately parses the recitation in a manner which depletes the meaning which would be understood by a person of skill in the art (POSITA) reading claim 1. That is, the Examiner states that "Chou further teaches wherein said degree of polarization measurement section that

measures said degree of polarization of said optical signal after a predetermined amount of time has elapsed from a time when said initial value was stored." However, claim 1 recites that the "predetermined amount of time is set to measure [...], when a change in said degree of polarization due to a change in a polarization mode dispersion is compensated." In other words it is not merely a time evolution, but a moment at which a certain condition (i.e., "a change in said degree of polarization due to a change in a polarization mode dispersion is compensated") is met.

In the second paragraph, the Examiner submits that Chou does not render obvious determining a change in SNR based on a measured change in the degree of polarization, but leaves out the condition associated to the "predetermined time" which is significant.

The parsing of the recitations in this manner constitutes evidence that the rejection is merely a hindsight reconstruction based on partial recitations allegedly rendered obvious by different references.

In view of the above arguments, Independent claim 1 and claim 3 depending from claim 1 patentably distinguish over the applied prior art.

Independent claim 4 and claims 5-11, 13 and 14 depending directly or indirectly from claim 4 patentably distinguish over the prior art at least because the following features recited in claim 4 are not anticipated or rendered obvious by the applied prior art:

> an optical SNR calculation section that [...] determines **a change amount in an optical signal to noise ratio of said optical signal according to a change between a measured value of the degree of polarization obtained in said degree of polarization measuring section relative to said stored initial value**, wherein
>
> said degree of polarization measurement section that measures said degree of polarization of said optical signal **after a predetermined amount of time** has elapsed from a time when said initial value was stored, and
>
> said predetermined amount of time is **set so that said degree of polarization measurement section to measure the change in said degree of polarization due to a change in the optical signal to noise ratio, when a change in said degree of polarization due to a change in a polarization mode dispersion is compensated**. (Emphasis added in view of the above discussion.)

Independent claim 12 patentably distinguishes over the prior art at least by reciting:

> an optical signal to noise ratio calculation section which determines a change amount in an optical signal to noise ratio of said optical signal, by using the measured value of the degree of

> polarization obtained by the degree of polarization measuring device in said automatic polarization mode dispersion compensation apparatus after a predetermined amount of time has elapsed from a time when said initial value was stored, the predetermined amount of time being set to ensure that the polarization measuring device measures the change in said degree of polarization due only due to a change in the optical signal to noise ratio, while a change in said degree of polarization due to a change in a polarization mode dispersion is compensated.

Referring to the last paragraph on page 8 continuing on top of page 9 of the outstanding Office Action, the mere monitoring in time of the degree of polarization does not render obvious that "the polarization measuring device measures the change in said degree of polarization due only due to a change in the optical signal to noise ratio, while a change in said degree of polarization due to a change in a polarization mode dispersion is compensated" to be used for determining the "change amount in an optical signal to noise ratio of said optical signal". Olsson does not render obvious that the extracted degree of polarization is or can be used in special circumstances (i.e. when a change in the degree of polarization due to a change in a polarization mode dispersion is compensated) to draw conclusions about a change in the signal to noise ratio.

Independent claim 15 patentably distinguishes over the applied prior art at least by reciting:

> determining a change amount in the signal to noise ratio of the optical signal based on a difference between a measured value of a degree of polarization of said optical signal at a time when the change in the degree of polarization due to a polarization mode dispersion is compensated and an initial value of the degree of polarization.

Independent claim 16 patentably distinguishes over the applied prior art at least by reciting:

> measuring a degree of polarization of the part of the signal at different times, and comparing the measured degree of polarization with a reference value of the degree of polarization to monitor a change of the signal to noise ratio based on a change of the measured degree of polarization.

Claims 7-10 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Chou and Olsson as applied to claim 4 above, and further in view of U.S. Patent No. 6,512,612 to Fatehi et al. (hereinafter "Fatehi"). Claim 11 is rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Chou, Olsson and Fatehi, as applied to claim 9 above, and further in view of U.S. Patent No. 6,154,273 to Suzuki (hereinafter "Suzuki"). Claims 13 and 14 are

rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Chou and Olsson, as applied to claim 4 above, and further in view of U.S. Patent No. 6,885,820 to Eder et al. (hereinafter "Eder").

Applicants found no evidence that Fatehi, Suzuki and Eder alone or in combination with Chou and Olsson correct or compensate for the above-identified failure of Chould and Olsson to render obvious all the features recited in independent claim 4. Therefore, claims 7-11, 13 and 14 patentably distinguish over the applied prior art at least due to the patentably distinguishing features inherited from claim 4.

**CONCLUSION**

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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